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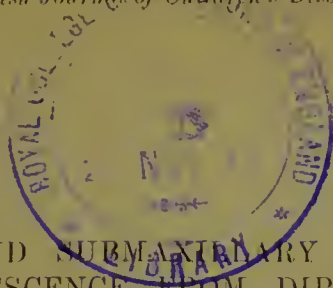
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**CERVICAL AND SUBMAXILLARY ADENITIS IN  
CONVALESCENCE FROM DIPHTHERIA.**

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## CERVICAL AND SUBMAXILLARY ADENITIS IN CONVALESCENCE FROM DIPHTHERIA.

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THE occurrence of cervical and submaxillary adenitis in the absence of any faucial inflammation is a well-recognised sequela of scarlet fever. Little attention, however, has been paid to a similar phenomenon in convalescence from diphtheria. Before the introduction of antitoxin in 1894 Cadet de Gassicourt and Sanné are the only writers, to my knowledge, who mention it. More recently certain French writers have noted it (Degny, Grancher, Boulloche and Babonneix, Ruault, Sevestre, and Martin).

The statistics of the Metropolitan Asylums Board fever hospitals since 1903, in which year this complication was first recorded, yield a total of 636 cases of secondary adenitis in diphtheria, or an annual average of 2·58 per cent. These figures, however, are somewhat misleading as to the true frequency of late adenitis in diphtheria, since these 636 cases comprise those in which adenitis is due to serum as well as those in which this factor can be excluded. Though overlooked in most text-books of medicine the occurrence of adenitis of the cervical and submaxillary glands was noted in the earliest papers on the use of antitoxin in diphtheria (Adolph, Baginsky, Barth, 'Clinical Society's Report,' Cnyrim, Daut, and Zielenziger). Of recent years attention has been drawn to it by Bonrlier, Coldefy, Currie, Degny and Weill, Goodall, Pirquet and Schick, and myself.

To determine the true frequency of late adenitis in diphtheria and to distinguish adenitis due to serum from that not so caused, I have been led to analyse 1530 cases of diphtheria, which I have been able to follow throughout their illness at the Grove Hospital in the course of the last six years: 1472 of the 1530 were injected with antitoxin. Adenitis of the submaxillary and cervical glands arising after subsidence of the acute attack and not secondary to faucial inflammation was noted in 147 cases, or 9·6 per cent. In 133, or 9·03 per cent., of those injected the adenitis was associated

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with other serum phenomena, such as rashes, pains in the joints or muscles, and pyrexia. In all but seven cases, in which the rash was urticarial, the associated eruption was a circinate erythema. In 111 the fauces were quite normal, but in 22 angina redux existed. This condition is a faucial enanthem corresponding to, and contemporary with, the cutaneous efflorescence, and is not the cause of, but merely co-exists with, the adenitis.

Pirquet and Schick have pointed out that enlargement of the inguinal glands in the neighbourhood of the injection is one of the earliest signs of the serum disease, and, as a rule, precedes the eruption of urticaria, the usual onset of which is a week from injection. Enlargement of the submaxillary and cervical glands, however, does not, as a rule, take place till later, and is then accompanied by other late serum phenomena. Thus only 4 of my cases of serum adenitis occurred within the first week from injection, whereas 99 were noted in the second week, and the rest later.

The following table shows the frequency of serum adenitis in relation to the other symptoms of the serum disease among the 1472 injected cases.

	Cases.	Percentage.
1. Urticaria . . . . .	978	66·4
2. Circinate erythema . . . . .	279	18·9
3. Pyrexia . . . . .	239	16·2
4. Pains in joints and muscles . . . . .	137	9·3
5. Cervical and submaxillary adenitis	133	9·03
6. Angina redux . . . . .	53	3·6

Serum adenitis is more frequent after a severe than after a mild initial angina, as is shown by the following figures :

	Cases of serum adenitis.	Percentage.
Severe angina . . . . .	67	11·9
Moderate angina . . . . .	36	9·8
Mild angina . . . . .	30	5·6

One may, therefore, conclude that severe diphtheria, which is accompanied by greater adenopathy than milder forms, and in which the lymphoid tissue consequently forms a *locus minoris resistentiæ*, predisposes to serum adenitis.

It is interesting to note that in scarlet fever the connection between the initial angina and the secondary adenitis is not so close, since in 81 per cent. of Dr. W. Hunter's cases of late adenitis the initial angina was only slight or moderate.

Unlike the other variety of adenitis, which, as my figures show,

is confined to young children, serum adenitis is met with at all ages, and shows only a slight decrease in frequency with advancing years. Thus the percentage of cases during the first quinquennium was 9·8, during the second 8·7, during the third 6·2, and from the age of 15 to 59 there were 7 cases, or 5·3 per cent.

Complete resolution is the rule in serum ~~diphtheria~~ *adenitis*. Chronic hyperplasia was not noted. In only four did suppuration occur. This infrequency of suppurative adenitis is characteristic of diphtheria. In only 5 cases, or 0·3 per cent., of the present series of 1530 cases did the initial adenitis end in suppuration. In 14 cases, or 0·91 per cent., the cervical and submaxillary adenitis was not associated with serum manifestations, but occurred at periods varying from eight to twenty-eight days from the last appearance of any serum phenomena. The average date was the twenty-eighth day of disease and the sixteenth from the last appearance of any serum phenomenon.

Late adenitis, as this variety may be termed to distinguish it from the serum adenitis just described, does not appear to have any relation to the character of the initial angina, since it occurred somewhat more frequently after a mild than after a severe initial attack. Thus 5 cases, or 0·8 per cent., were noted after severe; 1, or 0·5 per cent., after moderate; and 8, or 1·5 per cent., after mild angina.

The duration of late adenitis varied from a few days to a fortnight. The temperature ranged from normal to 103·8° F. The degree of constitutional disturbance never reached that frequently seen, even in the absence of nephritis, in association with the secondary adenitis of scarlet fever.

In each of the 14 cases the fauces were normal. Tonsillitis, as I have shown elsewhere, may arise in convalescence from diphtheria. In the present series it occurred in 48 cases, or 3·1 per cent. All were accompanied by some degree of adenitis, but as it was secondary to the faucial condition, the adenitis in these cases has not been added to the other cases of late adenitis.

In 10 of the 14 cases complete resolution took place. Suppuration occurred in 3. One boy still showed some glandular enlargement at the time of his transfer to a convalescent hospital. Since, as already stated, all the cases of serum adenitis completely resolved, it is obvious that chronic hyperplasia, not uncommon after scarlet fever, is a rare termination of the secondary adenitis of diphtheria.

In striking contrast to the late adenitis of scarlet fever which is

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so often associated with nephritis, only two cases had albuminuria, in one of which the albumin had persisted since the beginning of the disease.

The foregoing figures show that if we exclude the serum disease from the pathogeny, adenitis in convalescence from diphtheria is comparatively rare. In scarlet fever, on the other hand, late adenitis occurs with a frequency varying from 6.38 per cent. ('Metropolitan Asylum Board Reports'), or 7.2 per cent. (Schick) to 19 per cent. (W. Hunter).

The cause of the much greater frequency of adenitis in scarlet fever is doubtless to be sought in the fact that secondary infection, mainly streptococcal, which, according to general consent, is responsible for the sequela, plays a much more important part in scarlet fever than in diphtheria. The frequency with which abscesses occur at the injection site when serum of any kind has been given, and the difficulty of controlling sepsis in a tracheotomy wound in scarlet fever as compared with diphtheria, are noteworthy examples of the much greater tendency to secondary infection in scarlet fever.

It is remarkable that all the cases of late adenitis occurred in children whose ages ranged from one year and eight months to five years. Although 729 of the 1530 were above the age of five years, no case of late adenitis was observed above that age. The exclusive occurrence of this complication in young children is explained by the richer development and greater vulnerability of lymphoid tissue at this age, especially when the natural resistance of the tissues has been diminished by the initial attack.

*Diagnosis.*—The diagnosis of serum adenitis is readily made by the co-existence of other characteristic serum phenomena.

Before making the diagnosis of late adenitis one must exclude any faucial condition, such as tonsillitis or a relapse of diphtheria. In some cases an acute exanthem, especially scarlet fever, is preceded by submaxillary or cervical adenitis, so that the diagnosis of a late primary adenitis must not be too hastily made.

*Prognosis.*—Unlike the initial adenopathy of diphtheria, in which considerable glandular swelling is an unfavourable sign, the adenitis of convalescence has no untoward significance. All but one of the 147 recovered. In 47 of the serum adenitis cases paralysis occurred, two of which were severe, and three of the late adenitis cases had mild paralysis.

*Treatment.*—Beyond the application of fomentations to the neck and incision when suppuration occurs no special treatment is required.

## SUMMARY.

(1) Adenitis of the submaxillary and cervical glands in convalescence from diphtheria may occur either as a serum phenomenon, or much less frequently and at a later date independently.

(2) Serum adenitis is more frequent after severe than after mild angina. Late adenitis bears no relation to the initial attack.

(3) Serum adenitis may occur at any age. Late adenitis is confined to young children.

(4) The late adenitis of diphtheria, unlike that of scarlet fever, is not associated with nephritis nor considerable disturbance of the general condition.

(5) Complete resolution is the rule; suppuration is exceptional; chronic hyperplasia is still more uncommon in either variety of secondary adenitis.

(6) Serum adenitis is recognised by the presence of other serum phenomena. In the diagnosis of late adenitis, tonsillitis, a relapse of diphtheria or the onset of an acute exanthem must be excluded.

(7) Adenitis in convalescence from diphtheria, unlike that accompanying the initial attack, has no prognostic significance.

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